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10/591,688	09/05/2006	Keiko Yamamichi	295714US0PCT	4861

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EXAMINER	
SNYDER, ZACHARY J	

ART UNIT	PAPER NUMBER
2889	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/591,688	YAMAMICHI ET AL.	
	Examiner	Art Unit	
	Zachary Snyder	2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/5/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

The subsection referred to as "First and Second Organic Compound Layers" should be changed to "First and Second Inorganic Compound Layers."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 8-11, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 7,030,553 B2 to Winters et al.

In regard to claim 1, Winters discloses (figure 3 for reference) an organic electroluminescent display comprising:

a substrate (substrate 100, COL. 4, LINES 53-54); and

a first organic electroluminescent device part (gamut subpixel 21c, COL. 4, LINE 15) and a second organic electroluminescent device part (gamut pixel 21b, COL. 4, LINE 15) placed side by side on a surface of the substrate (substrate 100, COL. 4, LINES 53-54);

the first organic electroluminescent device part (gamut subpixel 21c) including at least a light reflective conductive layer (reflector 150c; the teachings of figure 3 can be applied to

passive matrix display (COL. 4, LINES 8-12) where a conductive material would be used as the reflector so it can function as an electrode (COL. 4, LINES 34-37)), an organic luminescent medium layer (organic EL media 210, COL. 7, LINE 23), and a transparent electrode layer (transparent electrode 240, COL. 7, LINE 45) in this order (shown in figure 3) and including a light reflective layer (semi-transparent reflector 230, COL. 7, LINES 40-41) inside or outside of the organic luminescent medium layer or the transparent electrode layer;

the second organic electroluminescent device part (gamut pixel 21b) including at least a light reflective conductive layer (reflector 150b; the teachings of figure 3 can be applied to passive matrix display (COL. 4, LINES 8-12) where a conductive material would be used as the reflector so it can function as an electrode (COL. 4, LINES 34-37)), a first inorganic compound layer (transparent cavity-spacer layer 140b, COL. 5, LINE 66), an organic luminescent medium layer (organic EL media 210, COL. 7, LINE 23), and a transparent electrode layer (transparent electrode 240, COL. 7, LINE 45) in this order and including a light reflective layer (semi-transparent reflector 230, COL. 7, LINES 40-41) inside or outside of the organic luminescent medium layer or the transparent electrode layer; and

an emission spectrum of light from the first organic electroluminescent device part differing from an emission spectrum of light from the second organic electroluminescent device part (gamut subpixels 21c and 21b have the colors blue and green respectively, COL. 3, LINES 24-26).

In regard to claim 2, Winters discloses (figure 3 for reference) an organic electroluminescent display comprising:

a substrate (substrate 100, COL. 4, LINES 53-54); and

a first organic electroluminescent device part (gamut subpixel 21b) and a second organic electroluminescent (gamut subpixel 21a) device part placed side by side on a surface of the substrate (shown in figure 3);

the first organic electroluminescent device part (gamut subpixel 21b) including at least a light reflective conductive layer (reflector 150b; the teachings of figure 3 can be applied to passive matrix display (COL. 4, LINES 8-12) where a conductive material would be used as the reflector so it can function as an electrode (COL. 4, LINES 34-37)), a first inorganic compound layer (transparent cavity-spacer layer 140b, COL. 5, LINE 66), an organic luminescent medium layer (organic EL media 210, COL. 7, LINE 23), and a transparent electrode layer (transparent electrode 240, COL. 7, LINE 45) in this order (shown in figure 3) and including a light reflective layer (semi-transparent reflector 230, COL. 7, LINES 40-41) inside or outside of the organic luminescent medium layer or the transparent electrode layer;

the second organic electroluminescent device part (gamut subpixel 21a) including at least a light reflective conductive layer (reflector 150a; the teachings of figure 3 can be applied to passive matrix display (COL. 4, LINES 8-12) where a conductive material would be used as the reflector so it can function as an electrode (COL. 4, LINES 34-37)), a first inorganic compound layer (transparent cavity-spacer layer 140a), a second inorganic compound layer (a second metal oxide layer can be formed above the reflector 150a and below the organic EL media layer, COL. 7, LINE 51-56), an organic luminescent medium layer (organic EL media 210, COL. 7, LINE 23), and a transparent electrode layer (transparent electrode 240, COL. 7, LINE 45) in this order (shown in figure 3) and including a light reflective layer (semi-transparent reflector 230, COL. 7,

LINES 40-41) inside or outside of the organic luminescent medium layer or the transparent electrode layer; and

an emission spectrum of light from the first organic electroluminescent device part differing from an emission spectrum of light from the second organic electroluminescent device part (gamut subpixels 21a and 21b have the colors red and blue respectively, COL. 3, LINES 24-26).

In regard to claim 3, Winters discloses (figure 3 for reference) an organic electroluminescent display comprising:

a substrate (substrate 100, COL. 4, LINES 53-54); and

a first organic electroluminescent device part, a second organic electroluminescent device part, and a third organic electroluminescent device part placed side by side on a single surface of the substrate (gamut subpixels 21(a, b, and c);

the first organic electroluminescent device part (gamut subpixel 21c) including at least a light reflective conductive layer (reflector 150c; the teachings of figure 3 can be applied to passive matrix display (COL. 4, LINES 8-12) where a conductive material would be used as the reflector so it can function as an electrode (COL. 4, LINES 34-37)), an organic luminescent medium layer (organic EL media 210, COL. 7, LINE 23), and a transparent electrode layer (transparent electrode 240, COL. 7, LINE 45) in this order and including a light reflective layer (semi-transparent reflector 230, COL. 7, LINES 40-41) inside or outside of the organic luminescent medium layer or the transparent electrode layer (shown in figure 3);

the second organic electroluminescent device part (gamut subpixel 21b) including at least a light reflective conductive layer (reflector 150b), a first inorganic compound layer (cavity-spacer 140b), an organic luminescent medium layer (organic EL media 210), and a transparent electrode layer (transparent electrode 240) in this order and including a light reflective layer (semi-transparent reflector 230) inside or outside of the organic luminescent medium layer or the transparent electrode layer (shown figure 3);

the third organic electroluminescent device part (gamut subpixel 21a) including at least a light reflective conductive layer (reflector 150a), a first inorganic compound layer (cavity-spacer 140a), a second inorganic compound layer (a second metal oxide layer can be formed above the reflector 150a and below the organic EL media layer, COL. 7, LINE 51-56), an organic luminescent medium layer (organic EL media 210), and a transparent electrode layer (transparent electrode 240) in this order and including a light reflective layer (semi-transparent reflector 230) inside or outside of the organic luminescent medium layer or the transparent electrode layer; and

emission spectra of light from the first, second, and third organic electroluminescent device parts differing from one another (gamut subpixels 21a, 21b, and 21c have the colors red, blue, and green respectively, COL. 3, LINES 24-26).

In regard to claim 5, Winters discloses the limitations of claim 1 and that at least one of the first inorganic compound layer (transparent cavity-spacer layer 140b, COL. 5, LINE 66) and the second inorganic compound layer includes an inorganic oxide (ITO, COL. 6, LINE 37).

In regard to claim 8, Winters discloses the limitations of claim 1 and that at least one of the first inorganic compound layer (transparent cavity-spacer layer 140b, COL. 5, LINE 66) and the second inorganic compound layer includes an oxide of an element selected from the group consisting of In, Sn, Zn, Ce, Sm, Pr, Nb, Tb, Cd, Ga, Al, Mo, and W (ITO, COL. 6, LINE 37).

In regard to claim 9, Winters discloses the limitations of claim 1 and that at least one of the first inorganic compound layer (transparent cavity-spacer layer 140b, COL. 5, LINE 66) and the second inorganic compound layer includes an oxide of an element selected from the group consisting of In, Sn, and Zn (ITO, COL. 6, LINE 37).

In regard to claim 10, Winters discloses the limitations of claim 1 and that the light reflective conductive layer (reflector 150b, COL. 7, LINE 31) includes a metal selected from the group consisting of Al, Ag, Au, Pt, Cu, Mg, Cr, Mo, W, Ta, Nb, Li, Mn, Ca, Yb, Ti, Ir, Be, Hf, Eu, Sr, Ba, Cs, Na, and K, or an alloy containing at least one metal selected from the group (preferred materials are Ag, Au, or allows composed of one or both of these materials, COL. 4, LINES 28-30).

In regard to claim 11, Winters discloses the limitations of claim 1 and that the light reflective conductive layer (reflector 150b, COL. 7, LINE 31) includes one, or two or more metals selected from the group consisting of Al, Ag, Au, Pt, Cu, Mg, Cr, Mo, W, Ta, Nb, Li, Mn, Ca, Yb, Ti, Ir, Be, Hf, Eu, Sr, Ba, Cs, Na, and K, or an alloy containing at least one metal

selected from the group (preferred materials are Ag, Au, or allows composed of one or both of these materials, COL. 4, LINES 28-30).

In regard to claim 13, Winters discloses the limitations of claim 1 and that the display further comprises a color filter (COL. 3, LINES 62-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,030,553 B2 to Winters et al. as applied to claim 1 above, and further in view of U.S. Patent to 6,464,898 B1 to Tomoike et al.

In regard to claims 12 and 14, Winters discloses the limitations of claim 1 but does not disclose that the display further comprises a fluorescence conversion film.

Tomoike teaches a fluorescence conversion medium for use in a display device (title of the invention).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a fluorescence conversion medium as taught by Tomoike in the display device taught by

Winters for the purpose of converting colors of the pixel that to be displayed into the color that is to be displayed (abstract).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,030,553 B2 to Winters et al. as applied to claim 1 above, and further in view of U.S. Patent to 6,462,470 B2 to Ootsuki et al.

In regard to claim 15, Winters discloses that limitations of claim 1 but that the inorganic compound layers are formed by a pattering process (COL. 6, LINE 15-16) but does not state that they are formed by wet etching.

Ootsuki teaches an organic EL display wherein an ITO film is patterned using a wet-etching method (COL. 5, LINES 60-61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made that the patterning process disclosed by Winters could be the wet etching method taught by Ootsuki since Ootsuki has demonstrated that wet etching is known in the art to be an effective way of patterning ITO which is the material from which the inorganic compound layer is made (ITO, COL. 6, LINE 37).

Claims 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,030,553 B2 to Winters et al. as applied to claim 1 above, and further in view of U.S. PG Publication 2005/0140277 A1 to Suzuki et al.

In regard to claim 4, Winters discloses the limitations of claim 1 but does not state that the first and second inorganic layers are subjected to a crystallization treatment. Although this is

a product by process limitation and the patentability of the claim resides on the final product and not the process by which it is manufactured, Suzuki teaches in figure 4, a display device wherein the first inorganic layer (ITO layer 202p) is subjected to a crystallization treatment (the p-layers are polycrystalline layers while the a-layers are amorphous layer, paragraph 52).

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teaches of Winters and Suzuki before him or her, to modify the display device of Winters to comprise inorganic layers that are subjected to a crystallization process as taught by Suzuki in order to use the crystalline layer as an etching stopper and only remove the amorphous layer during an etching process (paragraph 53).

In regard to claims 6 and 7, Winters in view of Suzuki teaches the limitations of claim 4.

Suzuki teaches a display device wherein the first inorganic compound layer and second inorganic compound layer include an inorganic oxide (ITO, paragraphs 52 and 53) and that the crystallinity of the first inorganic compound layer is higher than the crystallinity of the second inorganic compound and more specifically that the first inorganic compound layer is crystalline and the second inorganic compound layer is non-crystalline (shown in figure 4, the second inorganic compound layer 206a is an amorphous ITO layer and first inorganic compound layer is a polycrystalline ITO layer, paragraphs 52 and 53).

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teaches of Winters and Suzuki before him or her, to modify the display device of Winters to comprise inorganic layers that are subjected to a crystallization process as taught by

Suzuki in order to use the crystalline layer as an etching stopper and only remove the amorphous layer during an etching process (paragraph 53).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Snyder whose telephone number is (571)270-5291. The examiner can normally be reached on Monday through Thursday, 7:30AM to 6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zachary Snyder/
Examiner, Art Unit 2889

/Karabi Guharay/
Primary Examiner, Art Unit 2889